

REMARKS/ARGUMENTS

In this Amendment, Applicant adds new claims 17 and 18, and amends claims 1 and 10 to recite, inter alia, “flowing substantially parallel to the top and bottom surfaces”, in order to improve clarity. No new matter is introduced.

No amendments are made in response to the rejections of the Office Action.

Prior to entry of the Amendment, claims 1-16 were pending in the application. After entry of the Amendment, claims 1-18 are pending in the application.

In the Office Action, the Examiner objected to the drawings; rejected claims 1-5, 7, 14, and 15 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,594,274 to Suetaki (“Suetaki”) in view of Japanese Patent Publication No. 04-249121 A to Matsuura (“Matsuura”) and U.S. Patent No. 4,812,420 to Matsuda et al. (“Matsuda”); rejected claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Suetaki in view of Matsuura and Matsuda, and further in view of U.S. Patent No. 6,717,248 B2 to Shin et al. (“Shin”); rejected claims 10, 12, and 13 under 35 U.S.C. § 103(a) as being unpatentable over Suetaki in view of Matsuura and Matsuda, and further in view of U.S. Patent No. 5,750,153 to Shibata (“Shibata”) and Japanese Patent Publication No. 11-176855 A to Inoue (“Inoue”); rejected claim 11 under 35 U.S.C. § 103(a) as being unpatentable over Suetaki in view of Matsuura and Matsuda, further in view of Shibata and Inoue, and yet further in view of U.S. Patent No. 6,642,610 B2 to Park et al. (“Park”); and rejected claim 16 under 35 U.S.C. § 103(a) as being unpatentable over Suetaki in view of Matsuura and Matsuda, and further in view of U.S. Patent No. 5,517,056 to Bigler et al. (“Bigler”).

The Examiner also stated that claims 8 and 9 would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

Applicant gratefully acknowledges the Examiner's statement that claims 8 and 9 would be allowable.

Examiner Interview/Drawings

Applicant's representative held a telephone interview with the Examiner on August 2, 2007. Items discussed include the nature of the objections to the drawings. Neither the pending claims nor the cited references were discussed. No agreement was reached with respect to the pending claims.

During the telephone interview, the Examiner indicated that the drawings appear to be in order and that replacement drawing sheets are not required. As a result, Applicant includes no such replacement drawing sheets and requests that the objection to the drawings be withdrawn.

Translation of Matsuura

Applicant notes that the Examiner has ordered an English-language translation of Matsuura. Office Action, p. 3, § 2. Applicant requests that the English-language translation be made available to the Applicant in the next paper mailed by the U.S. Patent and Trademark Office ("USPTO") and, to the extent the Examiner relies on "additional facts that may be contained in the underlying full text document", that the next office action be made non-final in light of MPEP § 706.02 II.

Rejections Under 35 U.S.C. § 103(a)

To establish a prima facie case of obviousness under 35 U.S.C. § 103(a) using multiple references, the references when combined must teach or suggest all the claim limitations. MPEP 2143.

However, as discussed below, Applicant submits that Suetaki does not teach or suggest either "wherein the gate is arranged relative to the semiconductor chip whereby mold resin

entering the cavity through the gate will contact two closest side surfaces of the semiconductor chip at an angle of less than about 70°” (claim 1) or “wherein the gate is arranged relative to the plurality of semiconductor chips whereby mold resin entering the cavity through the gate will contact two closest side surfaces of the plurality of semiconductor chips at an angle of less than about 70°” (claim 10). Nor does the Examiner allege that any of the other art of record teaches or suggests these claim limitations. As a result, Applicant submits that independent claims 1 and 10 are patentable under 35 U.S.C. § 103(a) over any proper combination of Bigler, Inoue, Matsuda, Matsuura, Park, Shibata, Shin, Suetaki, and the other art of record. Applicant further submits that dependent claims 2-9 and 11-16 are patentable under 35 U.S.C. § 103(a) over any proper combination of Bigler, Inoue, Matsuda, Matsuura, Park, Shibata, Shin, Suetaki, and the other art of record, at least for the same reason that claims 1 and 10 are patentable, from which claims 2-9 and 11-16 directly or indirectly depend.

In the Office Action, the Examiner states “The examiner is construing the chip as a positive element of the claim as amended and argued by applicant”. *Id.*, p. 2, § 2. Applicant disagrees with this characterization. Claims 1 and 10 are directed to a mold die, not a mold die comprising a semiconductor chip or a plurality of semiconductor chips. The semiconductor chip (claim 1) and plurality of semiconductor chips (claim 10) assist in clarifying the resin flow in the claimed mold die.

The Examiner also states in the Office Action “It is clear from figure 5, that the resin flow hits the chip at an angle of about 45 degrees with respect to the two sides of the chip adjacent to the gate”. *Id.* Applicant submits that this statement implicitly assumes that the resin is flowing in a substantially horizontal direction, from the lower left corner of FIG. 5 toward the upper right corner of FIG. 5, when it contacts semiconductor chip 2. But as shown by a careful

reading of the Suetaki specification in light of FIGs. 1-3 (prior art) and FIGs. 4-6, while the resin in lower mold member 20 flows in that substantially horizontal direction, the resin flows from lower mold member 20 to upper mold member 30 in a substantially vertical direction. Thus, although FIG. 5 shows upper mold member 30 filling from the lower left corner of FIG. 5 toward the upper right corner of FIG. 5, the resin in upper mold member 30 is flowing in a substantially vertical direction as it fills upper mold member 30. Therefore, when the resin contacts semiconductor chip 2, it is flowing in a substantially vertical direction, as shown in FIG. 6.

Although, at least for the reasons discussed above, Applicant submits that Suetaki does not teach or suggest either “wherein the gate is arranged relative to the semiconductor chip whereby mold resin entering the cavity through the gate will contact two closest side surfaces of the semiconductor chip at an angle of less than about 70°” (claim 1) or “wherein the gate is arranged relative to the plurality of semiconductor chips whereby mold resin entering the cavity through the gate will contact two closest side surfaces of the plurality of semiconductor chips at an angle of less than about 70°” (claim 10), Applicant amends claims 1 and 10 to recite, inter alia, “flowing substantially parallel to the top and bottom surfaces” in order to improve clarity.

For at least the reasons discussed above, Applicant submits that independent claims 1 and 10 are patentable under 35 U.S.C. § 103(a) over any proper combination of Bigler, Inoue, Matsuda, Matsuura, Park, Shibata, Shin, Suetaki, and the other art of record. Applicant further submits that dependent claims 2-9 and 11-16 are patentable under 35 U.S.C. § 103(a) over any proper combination of Bigler, Inoue, Matsuda, Matsuura, Park, Shibata, Shin, Suetaki, and the other art of record, at least for the same reason that claims 1 and 10 are patentable, from which claims 2-9 and 11-16 directly or indirectly depend.

New Claims 17 and 18

Applicant submits that Suetaki also does not teach or suggest either “wherein the gate is arranged relative to the semiconductor chip whereby mold resin entering the cavity through the gate will contact two closest side surfaces of the semiconductor chip at an angle of less than about 70°, measured in a plane substantially parallel to the top and bottom surfaces” (claim 17) or “wherein the gate is arranged relative to the plurality of semiconductor chips whereby mold resin entering the cavity through the gate will contact two closest side surfaces of the plurality of semiconductor chips at an angle of less than about 70°, measured in a plane substantially parallel to the top and bottom surfaces” (claim 18). As a result, Applicant submits that independent claims 17 and 18 are patentable under 35 U.S.C. § 103(a) over any proper combination of Bigler, Inoue, Matsuda, Matsuura, Park, Shibata, Shin, Suetaki, and the other art of record.

Request for Reconsideration and Allowance

Accordingly, in view of the above amendments and remarks, reconsideration of the rejections and allowance of each of claims 1-18 in connection with the present application is earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

If necessary, the Director of the USPTO is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; in particular, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By

John A. Castellano, Reg. No. 35,094

P.O. Box 8910
Reston, VA 20195
703.668.8000

JAC/LFG/cm